

REMARKS

The application has been amended to place the application in condition for allowance at the time of the next Official Action.

Claims 9-27 were previously pending in the application. Claims 10, 13, 15, and 23-26 are canceled and new claim 28 is added. Therefore, claims 9, 11, 12, 14, 16-22, 27, and 28 are presented for consideration.

Claims 9-27 are rejected as unpatentable over HEESE 3,823,753, in view of MADRID et al. 5,832,779. This rejection is respectfully traversed.

Claim 9 is amended and includes a means for transmitting mechanical power to a piston. The means for transmitting mechanical power comprises a non-reversible screw and nut motorized system linked to the piston and adapted for controlling a position of the piston. The non-reversible screw and nut motorized system constitutes a failsafe device for locking the position of the piston. Claim 9 further provides that the non-reversible screw and nut motorized system constitute a synchronizing mechanism for a multi-actuator system.

The position set forth in the Official Action is that HEESE teaches a means for transmitting mechanical power to a piston but that the means for transmitting mechanical power to the piston is not responsible for locking the position of the

piston. Column 8, lines 34-44 and column 9, lines 15-24 of HEESE teach that the hydraulic system of HEESE, especially the valve 92, is used to lock the position of the piston.

In an attempt to overcome the shortcomings of HEESE, the Official Action has combined HEESE with MADRID et al. MADRID et al. teach a screw and nut system 60, 54. The screw-nut system is driven by an electric motor 10 through a plurality of gears. A shaft 46 on which some of the gears are disposed, is controlled by a solenoid 44. As seen in Figure 3a of MADRID et al., for example, the solenoid has a plunger 122 that is axially movable between a retracted position and an extended position. In the extended position the plunger 122 enables radial displacement of balls 94. Displacement of the balls 94 engages a clutch 28 so that the shaft 46 is connected to the screw 60 to allow rotation of the screw.

However, as disclosed on column 8, lines 14-44 of MADRID et al., in the event of a power failure, the plunger 122 moves upward so that the balls 94 are disengaged from the driver so that the screw 60 is forced upward towards its retracted position. Thus, the screw and nut system of MADRID et al. is reversible, not non-reversible, as recited.

In addition, in order to prevent the movement of the screw 60, MADRID et al. require an additional locking device 43 as disclosed at column 8, lines 45-48, to maintain the screw 60

in its fully extend position or in any position between its fully retracted and fully extended position, even if the solenoid 44 is de-energized.

The locking device as shown in Figs. 3a-3c of MADRID et al. includes a shaft 128 having a thinned portion 128a that interacts with shaft 122. The locking mechanism also includes a lever 30 that is at one end of the shaft 128 and provides the locking function. As seen in Figure 3c of MADRID et al., by pulling on knob 128b, shaft 128 is moved to the right (of the figure) and lever 130 pivots to engage with the side of housing 42 so that a thickened part of the shaft 128 prevents movement of plunger 122 to lock the position of plunger 122.

Accordingly, the screw and nut system of MADRID et al. is reversible, not a non-reversible screw and nut motorized system, as recited. In addition, MADRID et al. requires locking mechanism 43 to lock the position of the piston such that MADRID et al. do not meet the limitation of a non-reversible screw and nut-motorized system constituting a failsafe device for locking the position of the system.

In addition, claim 9 further provides that the non-reversible screw and nut motorized system constitutes a synchronizing mechanism for a multi-actuator system. This limitation is not disclosed or suggested by the proposed combination of references.

Independent claim 27 also includes means for transmitting mechanical power to the piston comprising a non-reversible screw and nut motorized system linked to the piston and adapted for controlling the position of the piston. Claim 27 also provides that the non-reversible screw and nut system constitutes a locking system of the piston. The analysis above regarding claim 9 is equally applicable to claim 27.

Claims 11, 12, 14, and 16-22 depend from claim 9 and further define the invention and are also believed patentable over the cited prior art.

Claims 9-27 are rejected as unpatentable over HEESE in view of STRINGER 5,778,733. This rejection is respectfully traversed.

As set forth above, HEESE does not disclose or suggest a means for transmitting mechanical power to the piston comprising a non-reversible screw and nut motorized system linked to the piston and adapted for controlling the position of the piston and that the non-reversible screw and nut motorized system constitute a failsafe device for locking a position of the piston.

STRINGER is offered for the teaching of a means for transmitting mechanical power to a piston wherein the mechanical power means is responsible for locking the position of the piston. However, STRINGER requires a separate locking mechanism,

locking detent 32 that includes a spherical ball detent 34. By adjusting a cable 66, a lever 56 of STRINGER is moved from the locking position to an open position. As seen in Figure 2a of STRINGER, when the lever 56 is in the locking position, detent ball 34 is within grooves 38 of nut 24. By moving wire 66, the lever 56 is pressed against shuttle 40 which moves against coil spring 56 so that detent ball 34 falls into a depression in the shuttle 40 and away from groove 38 to unlock the nut 24.

The nut of STRINGER is part of a reversible screw and nut system that includes screw 14. This screw and nut system 14, 24 are reversible and operate to move the piston. However, the detent and shuttle system of STRINGER lock the position of the piston, are separate from the screw and nut system and are not part of the means for transmitting mechanical power to the piston.

In addition, the lock of STRINGER is normally in the locked position. One of ordinary skill in the art would not use a normally closed lock on the system of HEESE because such lock would require additional power to keep the lock open and would not allow the actuator assembly of HEESE to operate in a way that the actuator assembly of HEESE was designed to operate.

Since each of MADRID et al. and STRINGER require a separate locking mechanism that is distinct from the means for transmitting mechanical power to the piston, one of ordinary

skill in the art would not be motivated to combine these references with HEESE to render obvious a non-reversible screw and nut motorized system linked to a piston and adapted for controlling the position of the piston wherein the non-reversible screw and nut motorized system constitutes a failsafe device for locking the position of the piston, as recited in claims 9 and 27 of the present application.

New claim 28 also includes means for transmitting mechanical power to the piston comprising a non-reversible screw and nut motorized system linked to the piston and adapted for controlling the position of the piston. New claim 28 also provides that the non-reversible screw and nut motorized system constitute a failsafe device for locking the position of the piston. The analysis above regarding claim 9 is equally applicable to claim 28.

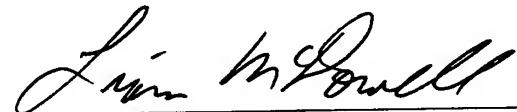
In view of the present amendment and the foregoing remarks, it is believed that the present application has been placed in condition for allowance. Reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any

overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



Liam McDowell, Reg. No. 44,231
745 South 23rd Street
Arlington, VA 22202
Telephone (703) 521-2297
Telefax (703) 685-0573
(703) 979-4709

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